any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 19-0036.

Amendments

In the Claims:

Please substitute the following claim 1 for the pending claim 1:

1. (Amended) A method for configuring a stochastic simulation model, comprising the steps of:

(a) creating an arbitrarily complex functional expression from a library of functional expression components; and

(b) creating an adaptor object;

wherein the adapter object serves as an intermediary between the arbitrarily complex functional expression and a target domain object within the stochastic simulation model so as to modify a property of the target domain object in accordance with the arbitrarily complex functional expression at runtime.

Please add the following new claims:

--3. The method of claim 1, further comprising the step of:

enabling an end-user to define inputs and outputs to the stochastic simulation model using the adapter object.

4. The method of claim 1, further comprising the step of:

enabling an end-user to define derived output expressions, wherein the derived output expressions create outputs derived from a previous simulation output, yet determined separate from the execution of an original stochastic simulation model output.

5. The method of claim 1, wherein the arbitrarily complex functional expressions include one or more stochastic and inter-object relationship functions, wherein the one or more stochastic and inter-object relationship functions only have a value at run-time.

6. The method of claim 1, further comprising the steps of:

determining the order in which each domain entity in the stochastic simulation model is to be evaluated at run-time; and

generating a dependency graph listing the domain entities in the order in which each domain entity must be evaluated during processing of the stochastic simulation model.

7. The method of claim 1, further comprising the step of:

processing the stochastic simulation model; and

updating each object in the stochastic simulation model for each period in each run of the stochastic simulation model.

8. The method of claim 7, wherein said processing step further comprises the steps of:

(1) initializing the stochastic simulation model for a new run, wherein each object initializes itself to its original starting state;

(2) processing the stochastic simulation model for each period, wherein processing for each period comprises the steps of,

(a) processing the stochastic simulation model for each object in the stochastic simulation model, wherein processing for each object comprises the steps of,

(i) evaluating each arbitrarily complex functional expression for each object in the order in which the arbitrarily complex functional expression falls within the dependency graph; and

(ii) updating the internal state of each object before processing the next period;

(b) repeating steps (a)(i) through (a)(ii) until every object has been evaluated;

(3) repeating step (2) until every period has been evaluated; and

(4) repeating steps (1) through (3) until every run has been evaluated.

9. The method of claim 1, further comprising the steps of:

(1) tracking the values of output properties; and

(2) storing the output property values over each period in which the stochastic simulation model is processed.

10. The method of claim 9, wherein step (2) further comprises the step of storing the output property values as a data structure for displaying and analyzing the data produced during processing of the stochastic simulation model.

11. The method of claim 10, wherein said step of storing the output property values as a data structure comprises the step of storing the output property values using a n-dimensional matrix data structure, wherein the n-dimensional matrix data structure can be manipulated from any perspective to identify a specific value of the n-dimensional matrix.

12. The method of claim 1, further comprising the step of:

enabling an end-user to define a specific subset of periods for processing the stochastic simulation model.

13. A computer program product comprising a computer useable medium including control logic stored therein, said control logic enabling configuration of a stochastic simulation model, said control logic comprising:

creating means for enabling a processor to create an arbitrarily complex functional expression from a library of functional expression components; and

creating means for enabling a processor to create an adaptor object;

wherein the adapter object serves as an intermediary between the arbitrarily complex functional expression and a target domain object within the stochastic simulation model so as to

modify a property of the target domain object in accordance with the arbitrarily complex functional expression at runtime.

14. The computer program product of claim 13, said control logic further comprising:

enabling means for enabling a processor to enable an end-user to define inputs and outputs to the stochastic simulation model using the adapter object.

15. The computer program product of claim 13, said control logic further comprising:

enabling means for enabling a processor to enable an end-user to define derived output expressions, wherein the derived output expressions create outputs derived from a previous simulation output, yet determined separate from the execution of an original stochastic simulation model output.

16. The computer program product of claim 13, wherein the arbitrarily complex functional expressions include one or more stochastic and inter-object relationship functions, wherein the one or more stochastic and inter-object relationship functions only have a value at run-time.

17. The computer program product of claim 13, said control logic further comprising:

determining means for enabling a processor to determine the order in which each domain entity in the stochastic simulation model is to be evaluated at run-time; and

generating means for enabling a processor to generate a dependency graph listing the domain entities in the order in which each domain entity must be evaluated during processing of the stochastic simulation model.

18. The computer program product of claim 13, said control logic further comprising:

processing means for enabling a processor to process the stochastic simulation model; and

updating means for enabling a processor to update each object in the stochastic simulation model for each period in each run of the stochastic simulation model.

19. The computer program product of claim 18, wherein said processing means further comprises:

initializing means for enabling a processor to initialize the stochastic simulation model for a new run, wherein each object initializes itself to its original starting state;

processing means for enabling a processor to process the stochastic simulation model for each period, wherein processing for each period comprises,

processing means for enabling a processor to process the stochastic simulation model for each object in the stochastic simulation model, wherein processing for each object comprises,

evaluating means for enabling a processor to evaluate each arbitrarily complex functional expression for each object in the order in which the arbitrarily complex functional expression falls within the dependency graph; and

updating means for enabling a processor to update the internal state of each object before processing the next period;

repeating means for enabling a processor to repeat said evaluating means and said updating means until every object has been evaluated;

repeating means for enabling a processor to repeat said processing means for enabling a processor to process the stochastic simulation model for each period until every period has been evaluated; and

repeating means for enabling a processor to repeat said processing means for enabling a processor to process the stochastic simulation model for each run until every run has been evaluated.

20. The computer program product of claim 13, said control logic further comprising:

tracking means for enabling a processor to track the values of output properties; and

storing means for enabling a processor to store the output property values over each period in which the stochastic simulation model is processed.

21. The computer program product of claim 20, wherein said storing means further comprises storing means for enabling a processor to store the output property values as a data structure for displaying and analyzing the data produced during processing of the stochastic simulation model.

22. The computer program product of claim 21, wherein said storing means comprises storing means for enabling a processor to store the output property values using a n-dimensional matrix data structure, wherein the n-dimensional matrix data structure can be manipulated from any perspective to identify a specific value of the n-dimensional matrix.

23. The computer program product of claim 13, said control logic further comprising:

enabling means for enabling a processor to enable an end-user to define a specific subset of periods for processing the stochastic simulation model.

24. A stochastic simulation framework/engine, comprising:

an initialization phase for generating a dependency graph comprising functional expressions having inter-object relationships and stochastic functions, wherein said inter-object relationships and stochastic functions only have a value at runtime;

a processing phase for processing a simulation model and updating a plurality of objects in said simulation model for each period in a run, wherein said functional expressions are evaluated for each of said objects in the order in which they appear in said dependency graph; and

an output phase for tracking the value of properties designated as output properties;

wherein an adapter object serves as an intermediary between said functional expressions and said each of said plurality of objects within said simulation model as to modify a property of said objects in accordance with said functional expressions at runtime.

25. The stochastic simulation framework/engine of claim 24, wherein said initialization phase performs random variate initializations to provide object correlation between said objects and variance reduction techniques.

26. The stochastic simulation framework/engine of claim 24, wherein said property of said objects includes one of an input property and an output property.

27. The stochastic simulation framework/engine of claim 26, wherein said input property is also a property to be tracked as said output property.

28. The stochastic simulation framework/engine of claim 24, wherein said functional expressions are arithmetic expressions formed from one or more functional expression components found in a library of functional expressions.

29. The stochastic simulation framework/engine of claim 24, wherein each of said functional expressions is written to said adapter object without knowing which of said input properties will receive said functional expression.

30. The stochastic simulation framework/engine of claim 24, wherein said stochastic simulation framework/engine requests a value from said adapter object and said adapter object retrieves said value for said output properties without the stochastic simulation framework/engine knowing how said value was retrieved or from where said value was retrieved.

31. The stochastic simulation framework/engine of claim 24, wherein derived output expressions are used to create new output data derived from an original simulation output.